

## CLAIMS:

1. A hydrogen storage material comprising a magnesium-containing intermetallic compound capable of forming a hydride with hydrogen, characterized in that the intermetallic compound comprises an alloy of magnesium and a trivalent metal selected from the group of Sc, Y, La and the rare earth elements.

2. A hydrogen storage material as claimed in claim 1, characterized in that the intermetallic compound comprises an alloy selected from the group of scandium-magnesium, gadolinium-magnesium and yttrium-magnesium.

3. A hydrogen storage material as claimed in claim 1 or 2, characterized in that the intermetallic compound comprises a scandium-magnesium alloy.

4. A hydrogen storage material as claimed in claim 3, characterized in that the scandium-magnesium alloy comprises 1-50 at.% scandium and 50-99 at.% magnesium.

5. A hydrogen storage material as claimed in claim 3 or 4, characterized in that the scandium-magnesium alloy comprises 15-40 at.% scandium and 60-85 at.% magnesium.

6. A hydrogen storage material as claimed in claims 3-5, characterized in that the scandium-magnesium alloy comprises 30-40 at.% scandium and 60-70 at.% magnesium.

7. A hydrogen storage material as claimed in one or more of the preceding claims, characterized in that the scandium-magnesium alloy comprises  $\text{Sc}_{0.35}\text{Mg}_{0.65}\text{H}_x$ .

8. A hydrogen storage material as claimed in one or more of the preceding claims, characterized in that it comprises an amount of a catalytically active material.

9. A hydrogen storage material as claimed in one or more of the preceding claims, characterized in that the catalytically active material comprises at least one metal

selected from the group consisting of palladium, platinum, cobalt, nickel, rhodium or iridium, and/or a composition of the formula  $DE_3$ , wherein D is at least one element selected from the group consisting of Cr, Mo and W, and E is at least one element selected from the group consisting of Ni and Co.

10. A hydrogen storage material as claimed in one or more of the preceding claims, characterized in that the catalytically active material comprises palladium, platinum or rhodium.

11. An electrochemically active material, characterized in that the material comprises a hydrogen storage material as claimed in one or more of the claims 1 to 10.

12. An electrochemical cell at least comprising a positive electrode and a negative electrode, characterized in that the negative electrode comprises a hydrogen storage material as claimed in one or more of the claims 1 to 10.

13. Electronic equipment powered by at least one electrochemical cell, characterized in that the at least one electrochemical cell is an electrochemical cell as claimed in claim 12.